Level 1 Consultation Project Information Form (PIF) – 2018 Update
Shasta-Trinity and Klamath National Forests

Note: If the FS and FWS biologist agree that the effects of the proposed action on listed species or critical habitat can be described sufficiently using this format, than this PIF may be used as a short-form Biological Assessment (PIF-BA). The determination of its use as a PIF BA requires L1 discussion of the project's complexity, scale, intensity, and effects. The Forests are encouraged to include any additional relevant information when submitting it for L1 review and discussion.

June 13, 2018 version 1.1

Planned Use: PIF ☐ PIF-BA ☒

If using form as a PIF, only complete basic relevant information. If submitting as a PIF-BA, provide short rationale below:

Based on lack of project complexity and impacts to T&E species, the USFWS Yreka office and USFS decided the PIF-BA was a suitable BA format for this project.

IPaC List Date (*Attach as an Appendix if submitting as a PIF-BA*): November 1, 2018

Listed Species & Critical Habitat Considered for Consultation[1] (*check all that apply and add species based on your project IPaC list if not included here*):

[1] Based on May 29, 2018 IPaC species list for the Yreka Fish and Wildlife Office's jurisdiction with internal review.

Northern spotted owl	☒	Northern spotted owl critical habitat	☒
Marbled murrelet	☐	Marbled murrelet critical habitat	☐
Gray wolf	☐	**OR** under Programmatic BA and separate tiering form	☐
Western yellow-billed cuckoo	☐		
California red-legged frog	☐	Oregon spotted frog	☐
Delta smelt	☐	Lost River sucker	☐
Shortnose sucker	☐	Valley Elderberry Longhorn Beetle	☐
Conservancy fairy shrimp	☐	Shasta crayfish	☐
Vernal pool fairy shrimp	☐	Vernal pool tadpole shrimp	☐
Yreka phlox	☐	Slender orcutt grass	☐
Water howellia	☐	Hoover's spurge	☐
Gentner's fritillary	☐	Mcdonald's rock-cress	☐

List and Provide Rationale for Species & Critical Habitat Not Considered (*outside range, no suitable habitat in action area, not on project IPaC list, etc.*):

Gray wolf- No effect. Wolves are not expected to occur within or near the project area due to a lack of wet meadows and security habitat. The project is also a considerable distance (about 120 miles) from the nearest known wolf pack (CDFW, 2018; Jordan, 2018; Laudon 2018). If new information from the State or other verified sources shows there are reproducing wolves within five miles of project activities, the Forest will contact FWS for technical assistance and discuss the need for reinitiation of consultation.
Western yellow-billed cuckoo- No effect. The project is not within the known or expected species range and no suitable habitat is present (Hughes 2015).
California red-legged frog- No effect. The project is not within the known or expected species range (USDI Fish and Wildlife Service 2002).
Delta smelt & longfin smelt- fish species not considered in wildlife analysis
Valley Elderberry Longhorn Beetle- No effect. The project is not within the known or expected species range (USDI FWS 1984).
Conservancy fairy shrimp, Vernal pool fairy shrimp & Vernal pool tadpole shrimp- No effect. The project is not within the known range of these species and no suitable habitat is present (USDI FWS 2005).

Hoover's spurge, slender orcutt grass & whitebark pine- plant species not considered in wildlife analysis

All other species are not on IPaC list. See species list in Appendix A.

Project Name: Dubakella Plantations Insect and Disease Project

Date PIF Submitted to Level 1: Click here to enter a date.
Submit PIF two weeks prior to L1 meeting

Level 1 PIF Presentation Date: Click here to enter a date.N/A

Provide rationale below for using the PIF as a PIF-BA: Based on lack of project complexity and impacts to T&E species, the USFWS Yreka office and USFS discussed and agreed that the PIF-BA was a suitable BA format for this project.

Estimated Draft BA Submission to L1 Bio if submitting a separate BA: N/A
Allow two weeks for Draft BA review by L1 bio, subject to modification per agreement based on workload

Ranger District / Management Unit: Hayfork and Yolla Bolla Ranger Districts/South Fork Management Unit

Project Biologist: Carla De Juilio

Project Leader: Leslie Warta

Expected NEPA Documentation: **Categorical Exclusion** ☒ **EA** ☐ **EIS** ☐

Expected NEPA Completion Date (month/year): January 19

National Fire Plan or Healthy Forest Restoration Initiative project (HFRA): **Yes** ☒ **No** ☐

Attach map(s) of the project and expected action area (1:24,000 scale)

Legal Location: T28N R11W Sections 1-4, 10, &11; T 29N R12W Sections 13 & 14; T30N R11W Sections 1, 2, 11-14, 23-26, 35, & 36; T29N R11W Sections 1-3, 7-12, 13-24, 26-29, & 32-35; T29N R10W Sections 4-8, 17, & 18; and T30N R10W Sections 6, 7, 18-21, & 28-33, Mount Diablo Meridian. See Appendix B for map of project action area.

Brief Description of Project
Include elevation, size in acres or miles, types of activities and equipment to be used in order to complete the project, road actions, other interrelated and interdependent actions. Attach a proposed action summary that includes all of this information if available.

The project focuses on silvicultural and fuel reduction treatments that will increase forest resiliency to insect and disease issues within the Dubakella watershed. This project includes treatments on 2,380 acres of plantations and prescribed fire application on 610 acres outside plantations. Silvicultural treatments consist of both hand and mechanical thinning which will be utilized only in plantations. Fuel reduction treatments are also planned to be conducted within plantations. Prescribed fire will also be applied between the plantations being treated as well as between those plantations and holding features such as roads, ridges, creeks, and fire lines. Plantation thinning prescriptions are designed to develop and maintain vigorous, healthy plantations that will be more resilient to natural disturbances, including insects, disease, and wildfire. Increasing resiliency to insects and disease in overstocked stands will be accomplished thru a combination of thinning treatments followed by fuels treatments. Thinning and fuels reduction treatments have been designed to decrease inter-tree competition and improve heterogeneity. Thinning prescriptions favor retention of tree species historically representative of the site and any inter-planting of openings will be done using a species mix representative of the surrounding natural

stands. To further increase the stands resiliency to insect and disease issues, while encouraging the development of late successional forest characteristics, fuels treatments have been developed to reduce the risk of crown fires by reducing fuel loading, height to the base of the tree crown, and crown bulk density. Fuel treatments consist primarily of pruning, mastication, piling and burning, chipping, and/or whole-tree yarding. Proposed plantations for treatment originated between 1957 and 1995 and range in size from 1 to 63 acres and are scattered throughout the Dubakella watershed. Elevations range from 2,720 to 5,680 feet.

Treatment types may be combined into one entry, or may occur individually. Two examples of combined treatments are: hand thinning combined with pruning, release, and hand piling, or whole tree yarding combined with machine piling. Both of these scenarios would be followed by pile burning. However, some treatments will occur over multiple individual entries.

Treatments in natural stands (outside plantations) would be limited to broadcast burning and fire line construction and preparation. Prescribed burning outside of plantations would only be done where natural stands lie between treated plantations and a fire control feature such as a road, a ridge, creek, or fire line (constructed or existing). Just like the plantations, multiple entries with prescribed fire may be necessary, as a part of this proposal, to move areas outside of plantations to desired fuel profiles (reduced surface fuel loading and increased crown base height).

Connected Actions include road treatments, road reconstruction, road maintainence, temporary road building and decommissioning, and creation of landings. There would be no new permanent road construction.

See Appendix C for more detailed description of the Proposed Action.

Estimated Implementation Start and Completion Dates or Season
For project activities that may impact listed species or their habitat

-Implementation may start as early as 2019. It is anticipated that treatments could continue for 20 years in the plantations and potentially longer in the burn blocks outside of plantations. Multiple entries may be necessary to achieve desired fuel profiles.
-For areas with a Northern spotted owl (NSO) Limited Operating Period (LOP) for noise/smoke disturbance-implementation would not occur from February 1 through July 9.
-For areas with a NSO LOP for habitat manipulation (the area outside plantations proposed for underburning)-implementation would not occur from February 1 through September 15.
-If protocol-level surveys indicate no nesting activity within 0.25 miles of proposed activities at the time of implementation or by mutual agreement with the FWS, these LOPs may be lifted.

Action Area Spatial Bounding and Rationale for All Listed Species (*may differ by species or project actions*)

For NSO, the Action Area consists of a 1.3 mile buffer around all project units. This is the size of a NSO home range and the typical action area utilized for analysis.

General Habitat Conditions in Action Area for Listed Species
Describe conifer, hardwood, shrub species, plantations or natural stands, presence of water, meadow habitat, other pertinent information for those species included in the planned consultation

The plantations within the project do not currently contain suitable (nesting/roosting or foraging) or dispersal NSO habitat due to their young age, relatively small diameter trees and high tree densities that NSO could not fly through. Many of the plantations are also dominated by ponderosa pine and/or contain a high density of understory trees and shrubs. The plantations are overstocked, containing 100-1,200 or more trees per acre and high levels of surface and ladder fuels. They are experiencing increased mortality due to competition, lack of water and resources for all trees, and decreased ability of trees to survive drought, insects and disease. The plantations originated between 1957-1995.

Outside of the plantations, forest types/conditions range drastically from areas that are dominated by brush and/or ponderosa pine with relatively open canopies (unsuitable NSO habitat) to areas containing suitable NSO habitat-mature mixed-conifer forest with high canopy cover and large trees (dominated by Douglas fir, but also containing ponderosa pine, sugar pine, white fir, incense cedar, madrone, big-leaf maple, live oak, black oak, and occasional Pacific yew in riparian corridors). The southern and western portions of the action area are predominantly void of suitable habitat (and are mostly outside of critical habitat), whereas the north and northeast portions do contain suitable and critical habitat. In many areas, the natural stands adjacent to the plantations are also experiencing areas of mortality from insects and disease.

The units proposed for broadcast burning outside of plantations, as well as the stands surrounding these units, contain some suitable and dispersal NSO habitat. This area is also within critical habitat. This area consists of mature mixed-conifer forest with high canopy cover (60%+) and large trees. It is dominated by Douglas fir, but also contains ponderosa pine, sugar pine, white fir, incense cedar, madrone, big-leaf maple, live oak, black oak, and occasional Pacific yew in riparian corridors. The highest quality habitat is within the South Fork Goods Creek corridor with additional habitat extending up side drainages to the east of it. Dispersal and unsuitable habitat is also present in this area.

Summarize Data from Common Stand Exams or Quick Plots (*include this information for a PIF-BA*)
Attach and/or describe below a summary of stand conditions. If stand exam data is available at the time of PIF submittal, include this information if using this document as a PIF-BA or provide at a later date. Include information on species, QMD, age class, basal area, TPA, snags per acre, snag QMD, large log size class and tonnage per acre, information on smaller CWD levels from Browns Transect data. If none of this information is available, describe based on field review and silviculturist or fuels specialist knowledge.

A summary of stand data for some of the plantations is included in Appendix D. This is the only stand data available.

Fuels' specialist input for natural stands proposed for burning outside plantations (no stand exams have been conducted at this time):

The following values are approximations based on remotely sensed landscape data with a resolution of 30 meters. They are useful generalizations on a coarse scale, but variations in the values will likely be present.

The majority (57%) of the natural stand area within the prescribed fire burn blocks is identified by LANDFIRE (2014) as Fuel Characteristic Classification System fuelbed 7: Douglas-fir – sugar pine – tanoak forest. This fuelbed is characterized by an average total canopy cover of 85%. The overstory averages 50% canopy cover, 35 stems per acre, an average dbh of 30 inches, and Douglas-fir and sugar pine as primary species. The mid-story averages 40% canopy cover, 100 stems per acre, an average dbh of 12 inches, and Douglas-fir, tanoak, and chinquapin as primary species. The understory averages 20% canopy cover, 950 stems per acre, an average dbh of 1 inch, and tanoak and chinquapin as primary species. The fuel bed averages one snag per acre at decay class 3, 32 inches dbh and a height of 35 feet. Down woody debris 3 inches and greater in diameter averages 27.5 tons/acre. The loading for material greater than 20 inches diameter is 15.9 tons/acre. Downed woody debris less than 3 inches diameter averages 6.1 tons/acre (Prichard et al, 2013).

Approximately 26% of the natural stand area within prescribed fire burn blocks is identified by LANDFIRE (2014) as Fuel Characteristic Classification System fuelbed 16: Jeffrey Pine – ponderosa pine – Douglas-fir – California black oak forest. This fuelbed is characterized by an average total canopy cover of 60%. The overstory averages 30% canopy cover, 45 stems per acre, an average dbh of 28 inches, and Douglas-fir, Jeffrey pine, and ponderosa pine as primary species. The mid-story averages 30% canopy cover, 60 stems per acre, an average dbh of 16 inches, and black oak, Douglas-fir, white fir, and incense-cedar as primary species. The understory averages 10% canopy cover, 80 stems per acre, an average dbh of 3.5 inches, and Douglas-fir, white fir, and incense-cedar primary species. The fuel bed averages 1.5 snags per acre at decay class 1 (recently dead with red foliage), 40 inches dbh and a height of 100 feet. The fuel bed also averages 0.7 snags per acre at decay class 2 (fine branches

have been shed, coarse branches and bark intact), 40 inches dbh and a height of 80 feet. Down woody debris 3 inches and greater in diameter averages 6.5 tons/acre. Downed woody debris less than 3 inches diameter averages 3.5 tons/acre (Prichard et al, 2013).

Methods, Data Sources, Assumptions

Describe all methods, data sources, assumptions for quantifying and qualifying the existing condition and expected effects (NAIP, eveg data, field review, etc.).

Current NSO habitat conditions were classified and quantified using a combination of the best available information, including E-veg, aerial imagery (NAIP), and field observations. Sources of NSO data (Activity Centers, nest sites, observations, etc) include the Forest Service NRIS/NRM database and the State California National Diversity Database (CNDDB). NSO data was also obtained from Sierra Pacific Industries (SPI), who also conducts NSO surveys in the Action Area (South Fork Goods Creek drainage).

Other Projects

List all ongoing Forest Service projects or activities within the action area (those with signed Decisions that have not yet been implemented or that are ongoing)

Gemmill Thin

Activity Type(s) – *Indicate each type of activity, acreage, and general information for which consultation is being requested. Information must be as complete as possible if utilizing this document as a PIF-BA.*

Timber Harvest	Green acres: Plantation thinning (2380 acres)
	Salvage acres: 0
	Systems (*whole tree / cable yard / cut-to-length / other*): whole tree yarding, cable yarding, cut to length by hand
	Equipment: chainsaw, excavator, dozer, tracked chipper, cable yarder, rubber tired skidder, masticator
	Season of Work: Plantations do not contain suitable (NRF) NSO habitat. Plantations within 0.25 mile of NSO NRF habitat will be implemented July 10-January 31; No seasonal restriction is needed on plantations not within 0.25 mile of NRF habitat.
Hazard Trees	Hazard abatement (yes / no): Snags that pose a safety hazard to personnel or prescribed fire control lines will be felled and left on site as logs.
	If not abatement only, discuss at L1 and provide more information on estimated miles and width of treatment, design features for percent mortality to be removed or diameter limits, etc.: Only hazardous snags will be felled and they will be left on site as logs.
	Season of Work: If within NRF habitat (some areas outside plantations where broadcast burning and control lines will be built)- September 16-January 31; If outside of NRF habitat but within 0.25 miles of NRF- July 10-January 31
Prescribed Fire (outside plantations)	Ignition Method (*drip torch / helicopter / both*): drip torch, fuse, vary pistol, possibly helicopter
	Acres of Treatment / Percent of Project Area Affected: 610 acres
	Season of Work: September 16-January 31
Mechanical Fuels Treatment	Systems (*machine pile / hand pile / mastication / lop/scatter with chainsaw / other*): machine pile, hand pile, mastication, lop/scatter, pile burn, jackpot burn, broadcast burn, prune, utilization (firewood), goat grazing
	Acres: 2990
	Equipment: masticator, chainsaw, dozer, tracked chipper, drip torch
	Season of Work: If within NRF habitat (some areas outside plantations where broadcast burning will occur)- September 16-January 31; If outside of NRF habitat but within 0.25 miles of NRF- July 10-January 31
Trail Work	Activity (*maintenance / new construction*): N/A
	Estimated miles of treatment:
	Equipment:
	Season of Work:
Road Work	Activity (*new construction, maintenance, decommissioning, other; also if using as a PIF-BA, provide information on estimated temp roads*): reconstruction, maintenance including culvert upgrades, decommissioning, temp road building and decommissioning. There will be no new road construction.
	Estimated miles of treatments / road types: No more than 1.5 miles of temp roads are needed; however only 3,916 feet (0.75 miles) are anticipated (locations are identified for those 0.75 miles). No temp roads are proposed in NRF habitat. Approximately 6 miles of roads are proposed for decommissioning (hydrological closure). Forty-eight legacy sediment sites have been proposed for treatment (includes culvert upgrades or removal, installing rolling and critical dips, waterbars,

	and/or cross-drains).
	Equipment: Heavy equipment such as dozers, graders, dump trucks, excavators.
	Season of Work: Road work activities would not impact NRF habitat but may cause a noise disturbance. If loud and continuous noise will occur (2 or more hours per day in a given location) within 0.25 miles of NRF, the season of work would be July 10-January 31.
Site Prep and Reforestation / Timber Stand Improvement (TSI)	Activity (*piling, mastication, mechanical or manual release, pruning, chipping, other*): Release (manual and mechanical) and reforestation (all within plantations)
	Acres: up to 2380 but realistically much fewer acres (reforestation would only occur in plantations where there are large gaps or where the species composition does not reflect the natural stands adjacent to the plantations)
	Equipment: hand tools such as brush cutters, shovels, McLeods, weed whackers, chainsaws
	Season of Work: Plantations do not contain NRF habitat. If loud and continuous noise will occur (2 or more hours per day in a given location) within 0.25 miles of NRF, the season of work would be July 10-January 31. No seasonal restriction is needed on plantations not within 0.25 mile of NRF habitat.
Other Activities	Activity / Acres: Control line construction within/around the broadcast burning area outside plantations (2 foot wide hand lines, 10 foot wide dozer lines). **Distances:** Dozer Lines=1.6 miles, Hand Lines=5.5 miles. Control line preparation (along hand lines, dozer lines, and roads used for control) will include felling and leaving hazard trees, cutting brush and pruning trees to a height up to 8 feet, masticating, handwork, lop/scatter, and pile and burning. Prep would occur within (up to) 50 feet from hand lines and within (up to) 100 feet from dozer lines and roads used as control lines. Prep would only occur on the fire-side of the lines. **Acres/Distances:** Dozer Lines=1.6 miles, Hand Lines=5.5 miles, Roads=10 miles. **Acres of control line prep:** Dozer lines=21 acres, Hand lines=64 acres, Roads=185 acres Landing construction: No more than 17 new landings will be needed; however approximately 12 new landings are anticipated (locations have been identified for 12- most of these are within plantations but up to 5 new landings may be constructed outside of units). Landings may be up to 1 acre in size and are not currently proposed within NRF habitat.
	Equipment: hand tools, bulldozer, masticator, chainsaw, drip torch
	Season of Work: If outside of NRF habitat but within 0.25 miles of NRF- July 10-January 31; if within NRF habitat - September 16-January 31

Species Information

***Northern spotted owl**: Complete the following information as feasible for the NSO. If utilizing this document as a PIF-BA, the information should be based on the best available and complete information at the time of submittal to FWS for review and discussion.*

NSO Survey Information

1) Are or will surveys be completed per the 2012 protocol? **Yes** ☒ **No** ☐
2) Describe the Survey History and Current Survey Plan below:

Surveys have been conducted in some, but not all of the action area. Surveys within the Gemmill Project Action Area have been conducted to protocol annually since 2007. The Gemmill survey area overlaps with a portion of the Dubakella project. SPI has also conducted surveys in the Gemmill area, including in South Fork Goods Creek where the broadcast burning would occur outside of plantations.

Surveys will occur in the Gemmill Action Area in 2019 but it is yet-to-be-determined if surveys will continue beyond that. SPI will likely survey portions of the Gemmill area, including South Fork Goods Creek, even if we do not. There are no plans to survey other portions of the Dubakella project area.

Where/when current protocol-level surveys have not been completed, all suitable NSO habitat will be assumed occupied and will be protected by limited operating periods (LOPs).

NSO Disturbance Information

1) Is there Potential for Noise or Smoke Disturbance*? **Yes** ☒ **No** ☐

Review Criteria	**YES**	**NO**
Known NSO activity centers within 0.25 mile	X	
NSO suitable habitat within 0.25 mile of planned activity and surveyed to protocol	X	
Unsurveyed suitable habitat for NSO within 0.25 mile	X	

2) Is blasting of rock proposed? **Yes** ☐ **No** ☒

3) Is helicopter use proposed (**possibly** for prescribed burning outside of plantations) **Yes** ☒ **No** ☐

4) Describe the expected noise below (*cutting, processing and haul of logs, helicopter use, blasting, road maintenance or construction/reconstruction, etc.)? If blasting or helicopter usage is planned, provide maps of locations and estimated flight paths, if available:*

Expected noise includes cutting (chainsaws, weed whackers), processing and hauling of logs, masticating, chipping, dozer line construction, road maintenance including culvert upgrades, temporary road building, and road decommissioning. Helicopter use is possible for prescribed fire ignition outside of plantations but flight paths are unknown. There will also be smoke generated from broadcast burning, pile burning and jackpot burning.

**Note that for a 'May Affect, Not Likely to Adversely Affect' determination, seasonal restrictions are required for activities that would generate sound levels 20 or more decibels above ambient sound levels; or for activities that would generate maximum sound levels above 90 decibels, excluding vehicle back-up alarms. Maximum sound levels are the combined ambient and activity-generated sound levels.*

Proposed Seasonal Restrictions within 0.25 mile of ACs/suitable habitat (*check all that may apply*)

Dates	**YES**	**NO**	**List Applicable Units** *(if using this as a PIF-BA)**
None	X		Activities that do not impact NRF habitat and do not generate loud and continuous noise and/or smoke (2 or more hours/day), including road work that is transitory (does not remain in one location).
2/1 to 7/9	X		Plantations and other units/activities where loud and continuous noise or smoke-generating activities would occur, outside of NRF habitat but within 0.25 mile of occupied or unsurveyed NRF habitat.
2/1 to 9/15	X		Broadcast burning units (and associated control lines) outside of plantations within occupied or unsurveyed NRF habitat.

*****See Appendix G for list of project units with LOPs

NSO Action Area Existing Conditions

Define the action area bounding (are you utilizing a 'disturbance-only' buffer or a larger spatial extent due to habitat modification?). Describe the suitable and critical habitat conditions in the Action Area (i.e., stand / forest types, tree species, QMD, basal area, canopy closure for NRF and Dispersal). For critical habitat, include a description of PBF 1 if you have determined that this PBF of critical habitat exists in the action area:

The Action Area consists of a 1.3 mile buffer around all project units.

The plantations within the project do not currently contain suitable (NRF) or dispersal NSO habitat due to their young age, relatively small diameter trees and high tree densities that NSO could not fly through. Many of the plantations are also dominated by ponderosa pine. The plantations are overstocked, containing 100-1,200 or more trees per acre and high levels of surface and ladder fuels. They are experiencing increased mortality due to competition, lack of water and resources for all trees, and decreased ability of trees to survive drought, insects and disease. The plantations originated between 1957-1995.

Outside of the plantations, forest types/conditions range drastically from areas that are dominated by ponderosa pine with relatively open canopies (unsuitable NSO habitat) to areas containing suitable NSO habitat- mature mixed-conifer forest with high canopy cover and large trees (dominated by Douglas fir, but also containing ponderosa pine, sugar pine, white fir, incense cedar, madrone, big-leaf maple, live oak, black oak, and occasional Pacific yew in riparian corridors). The southern and western portions of the action area are predominantly void of suitable habitat (and are mostly outside of critical habitat), whereas the north and northeast portions do contain suitable and critical habitat. In many areas, the natural stands adjacent to the plantations are also experiencing areas of mortality from insects and disease.

The units proposed for broadcast burning outside of plantations, as well as the stands surrounding these units, contain some suitable and dispersal NSO habitat. This area is also within critical habitat. This area consists of mature mixed-conifer forest with high canopy cover (60%+) and large trees. It is dominated by Douglas fir, but also contains ponderosa pine, sugar pine, white fir, incense cedar, madrone, big-leaf maple, live oak, black oak, and occasional Pacific yew in riparian corridors. The highest quality habitat is within the South Fork Goods Creek corridor with additional habitat extending up side drainages to the east of it. Dispersal (PBF 4) and unsuitable habitat (PBF 1) is also present in this area. PBF 1 consists of early to mid-seral forest types including mixed-conifer and Douglas fir dominant. PBF 2 (NR) habitat in this area is comprised of stands dominated by Douglas fir with moderate to high (60-90%) canopy closure, high basal area (>150 ft^2/acre), QMD ≥ 15", a multilayered,

multispecies canopy with large (20-60 inch DBH) overstory trees, large snags and logs, and sufficient open space below the canopy for spotted owls to fly. PBF 3 (F) habitat is comprised of stands dominated by Douglas fir with moderate to high (≥40%) canopy closure, basal area of 80-180 ft^2/acre, QMD ≥11", a multilayered, multispecies canopy, large snags and logs, and sufficient open space below the canopy for spotted owls to fly. PBF 4 (D) habitat is comprised of younger, less diverse forest stands that are more even-aged, contain smaller trees and lower canopy closure; however there is still sufficient open space below the canopy for spotted owls to fly. PBF 4 conifer stands contain trees ≥11" DBH and ≥40% canopy closure over ≥50% of the area.

Table 1. Existing Habitat Conditions in NSO Action Area

*Complete this information **as feasible for the Existing Condition**, as not all information may be available at time of PIF submittal and presentation. This information should be complete when submitting as a PIF-BA.*

Habitat in 'noise/smoke disturbance' action area (*0.25 mile buffer on activities*)			**Describe activity(ies):** Tree felling and removal, mastication, chipping, release, pile and burning, jackpot burning, broadcast burning, dozer and hand line construction and prep, road work.
N/R ac	**Foraging ac**	**Dispersal ac**	
2,330	1,594	3,848	

Habitat in 'habitat alteration' action area *(1.3 mile buffer)*	**N/R**	**Foraging***	**Dispersal**	**Non-Habitat**
Total acres of habitat	6,807	5,476	11,129	27,821

Will Critical Habitat **BE TREATED**? (*if YES, complete subunit name(s) and acre(s) below for existing condition – if NO, do not fill out the information below as it is not relevant if CH is not treated*)	**Yes** ☒ **No** ☐
CH unit(s) and Subunits in action area (*add additional rows for the existing condition if more than one subunit is affected*)	Critical Habitat Unit Name: Interior California Coast Subunit Name: ICC 1

	PBF 2	***PBF 3***	***PBF 4***	***PBF 1***
Total CH subunit acres in action area	5,370	3,316	5,306	10, 610

* 1.3 mile Action Area also contains 456 acres of Post-Fire Foraging 1 and 36 acres of Post-Fire Foraging 2. Post-fire foraging habitat (PFF) in the action area is the result of the 2015 wildfire season on the Shasta-Trinity Natoinal Forest and is categorized as PBF1 within designated critical habitat. PFF can provide short-term habitat for foraging NSOs, and legacy structures (snags, leaning trees) for future stand development. No PFF is planned for treatment under this project.

NSO Habitat Modification Information

If the proposed action is likely to result in noise or smoke disturbance ***only, there is no need to complete this section – skip ahead to the ESA Cumulative Effects section and complete that****. If habitat modification will occur, complete all of the following information as feasible. If using this document as a PIF-BA, this information should be complete. A "Yes" response for downgrading or removal of habitat function requires additional information and discussion at L1.*

Review Criteria	**YES**	**NO**
1) Will proposed action benefit current non-habitat or suitable NSO habitat?	X	
2) Will proposed action degrade suitable NSO habitat *(even short term)?*	X	
3) Will proposed action downgrade suitable NSO habitat?		X
4) Will proposed action remove suitable NSO habitat?		X
5) Will NSO habitat be benefitted, degraded, downgraded or removed in a core?	X	
6) Will NSO habitat be benefitted, degraded, downgraded or removed in a home range?	X	

*** If "No" to all of the above and just noise or smoke disturbance is expected, Tables 2-8 below can be deleted or left blank.*
If 'Yes' to any of the above, what are the expected impacts to NSO and/or habitat in the action area and the timeframes? *(Deconstruct actions and describe effects to NSO habitat and prey: thinning, fuels treatments, burning? Will effects be short or long term or both? Be sure to define the temporal bounding. Will there be extensive removal of snags or predominant / dominant trees? Are there overlapping treatments that may compound effects to NSO habitat or prey? What are the estimated size classes of snags and trees to be felled and removed, or thinned? Add any additional tables outside of those included below, as applicable. If there are design features that reduce impacts to habitat, note this and describe them on page 20.*

None of the plantations proposed for treatment currently contain suitable (NRF) or dispersal NSO habitat due to their young age, small diameter trees and high tree densities that NSO could not fly through. Many of the plantations are also dominated by ponderosa pine. There are 6 older plantations (planted between 1957-1988) that total 45 acres which are expected to become dispersal habitat immediately post-project. They contain conifer trees (Douglas fir dominant) with an average QMD greater than 11 inches and at least 40% canopy closure, however they are dense and abundant lateral branches currently obstruct/prevent NSO flight. Thinning these particular plantations would immediately benefit NSO.

Thinning the remaining plantations is expected to expedite the development of the plantations into dispersal or suitable habitat in the long-term. The proposed thinning will promote increased growth and vigor of remaining trees and improve overall stand health by reducing competition for limited resources, including water. All legacy trees and large (≥15" DBH) snags will be retained in the plantations unless a safety hazard. If these are felled they will be left on site as logs. Tree species diversity will be improved by focusing on thinning the ponderosa pine and preferentially retaining and planting other conifer and hardwood species that historically represent the site and surrounding natural stands. Healthy dominant and co-dominant hardwood species will be retained and will count in spacing criteria. Riparian species, including but not limited to white alder (*Alnus rhombifolia*), Pacific dogwood (*Cornus nuttallii*), bigleaf maple (*Acer macrophyllum*), blue elderberry (*Sambucus nigra ssp. Caerulea*), willow, and yew (*Taxus brevofolia*) will be retained and will not be treated. Thinning and increasing diversity will create stands more resilient to insects and disease. Fuels treatments and understory burning will further improve understory conditions and diversity, improve the establishment of planted trees, and reduce the risk of future high intensity fire. These treatments are designed to encourage the development of late successional forest characteristics in the long term (approximately 70-100 years, depending on current stand age, although some characteristics such as large snags and logs may take longer to develop).

The area proposed for broadcast burning outside of plantations does contain some suitable NSO habitat. Extensive discussion and collaboration occurred between the STNF and Yreka FWS to design this portion of the project to minimize potential effects to NSO or NSO habitat/critical habitat. Wildlife Resource Protection Measures as well as Project Design Features specific to broadcast burning outside plantations are described on pages 20-22.

Prescribed fire will be variable within and between stands, will be distributed over a number of years, and will incorporate project design features that seasonally restrict operations during the NSO nesting season, and that limit the proportion of cores, home ranges or "owlsheds" burned in any one year (see page 18 for definition of owlshed). Burning will be done to create low to moderate fire behavior (flame lengths two to six feet but generally less than four feet) to meet the desired habitat restoration objectives. Firing techniques that maintain suitable habitat functionality immediately post-burn will be utilized. Habitat elements such as a multi-layered canopy of small to large size class trees (including saplings, under and midstory leaning trees, and hardwoods), canopy closure, decadence, large snags, and large down logs will be retained. Some individual habitat elements such as snags or down logs may be consumed partially or wholly by fire. Some woody debris and shrub cover will be consumed by fire and will be unavailable for NSO prey species. This limited loss of individual habitat elements will be for the short-term (1-3 years), as fire effects are dynamic: some snags and logs will be consumed yet some live trees will be killed, contributing new snags and logs to the system. Woody shrubs will be burned, but will re-sprout or re-seed and shrub regrowth following fire is typically rapid. Prescribed fire will be managed to have minimal impacts to overstory trees. Flare ups and higher flame lengths and fire intensity may occur where there are higher fuel concentrations of small ladder fuels or down wood; however this is expected to be infrequent, patchy, and small in size. These small areas (approximately 24 acres total) of higher intensity fire may be considered a short-term habitat degrade. Control line preparation within the burn blocks is also expected to be a short-term degrade to NRF habitat, when combined with the underburning (94 acres). However, overall, broadcast burning is expected to maintain current habitat and have long-term benefits (increased resiliency to future wildfires, insects and disease). The small openings created by pockets of higher severity fire are expected to contribute to habitat heterogeneity and NSO foraging ability would likely improve in these areas previously containing dense vegetation through enhanced flight space and access to prey. In addition, many areas along the roads that will be used as control lines are currently too dense for owls to fly through so preparation of these control features will likely be beneficial although they were lumped into the degrade acres above.

As in the plantations, in the broadcast burn units all large (≥15" DBH) snags will be retained unless a safety hazard to personnel or fire control lines. If felled they would be left on site as logs. Coarse wood (logs greater than 20 inches diameter and 10 feet long) that is already on the ground will be retained where feasible. Within nesting/roosting and foraging habitat, large logs will be maintained as feasible, with an average of 6-8 logs per acre (at least 20 inches in diameter and 10 feet long) retained with an average of 10-20 tons/acre of fuel remaining, for protection of habitat and soil fertility.

The goal of prescribed fire in NSO habitat is to maintain suitable habitat functionality by maintaining a sustainable late-successional forest structure and increasing resilience to future disturbance, such as stand-replacing wildfire. Both the Forest Wide Late Successional Reserve Assessment and the Revised Recovery Plan for the Northern Spotted Owl support this goal and advocate for monitoring the effects of restoration efforts (USDA 1999; USDI 2011). As discussed with Yreka FWS, a burn monitoring plan will be developed, and adapted as needed, to insure habitat functionality is maintained. A burn severity assessment will follow each prescribed fire to determine its ecological significance. One protocol for measuring burn severity is Composite Burn Index (CBI), which evaluates the degree of change for each of five strata, ranging from the forest floor to the upper canopy, and aggregates numerical scores into a final rating within a 30-meter plot (Key and Benson 2006). The CBI scale ranges from 0 (unburned) to 3 (highest burn effect). The ideal CBI burn severity rating for NSO habitat would likely average around 1.0 (low severity) and would, ideally, not exceed 1.5 (the low end of moderate severity). CBI is not the only way to measure burn severity, and monitoring of fire effects for this project should not be limited to a single protocol, as more effective means for measure change may become available. However, the CBI protocol is useful for determining the indicators and ideal ranges of fire effects within each stratum of the stand, which can be found in Table 2 below.

Burn severity will be determined as an average across the habitat within the area burned. Heterogeneous fire effects are expected and encouraged, as they create the features that define habitat functionality. Burn severity would be determined by completing a series of plots according to a protocol such as CBI. Plot density would be

sufficient to provide an adequate assessment of all the habitat burned as a part of this project (e.g. one plot per 25 acres of habitat). Plots would be completed as soon after completion of the burn as is feasible. However, it may be necessary to wait until enough acres are burned to get an adequate assessment of severity. In prescribed fire scenarios, it can be expected that the greatest degree of change will occur in the lower strata. Departures from the desired range, whether too hot or cool, would be treated as opportunities to study and refine the fire intensities, burn techniques, and/or prescription elements in order to create positive outcomes going forward.

See Appendix B for map of Action Area NSO Habitat.

Table 2. Burn Severity Assessment – Ideal Range for Each Severity Indicator, Comparison to CBI

Strata / Rating Factor	**Ideal Burn Severity Indicator Range**	**CBI Score Range**
Substrates		
Litter and light fuels (0-3") consumed	50 – 100% litter; 25 – 90% light fuels	1.0 – 2.5
Duff	Light char - 50% consumption, deep char	1.0 – 2.0
Medium fuel (3-8")	20 – 40% consumption	1.0 – 2.0
Heavy fuel (>8")	10 – 35% consumption, deep char	1.0 – 2.5
Total soil/rock cover	10 – 50 % soil cover change	1.0 – 2.5
Herbs, Low Shrubs, and Trees Less Than 3 Feet		
Percent foliage altered (black/brown)*	30 – 80%	1.0 – 2.0
Frequency percent living*	20 – 90%	1.0 – 2.5
Anticipated colonizer potential	Low - Moderate	1.0 – 2.0
Anticipated change in species composition/ relative abundance 2-3 years post-burn	Low - Moderate	1.0 – 2.0
Tall Shrubs and Trees 3 to 16 feet		
Percent foliage altered (black/brown)	10 – 50%	0.5 – 1.5
Frequency percent living	45 – 95%	0.5 – 1.5
Percent change in cover	5 – 55%	0.5 – 1.5
Anticipated change in species composition/ relative abundance 2-3 years post-burn	Low - Moderate	0.5 – 1.5
Intermediate Trees (Sub-canopy, Pole-sized Trees)		
Percent green (unaltered)	80 – 100%	0 – 1.0
Percent black (torched)	0 – 20%	0 – 1.0
Percent brown (scorched/girdled)	0 – 20%	0 – 1.0
Percent canopy mortality	0 – 15%	0 – 1.0
Char height	0 – 5 ft	0 – 1.0
Big Trees (Upper Canopy, Dominant and Codominant Trees)		
Percent green (unaltered)	90 – 100%	0 – 1.0
Percent black (torched)	0 – 10%	0 – 1.0
Percent brown (scorched/girdled)	0 – 10%	0 – 1.0
Percent canopy mortality	0 – 10%	0 – 1.0
Char height	0 – 6 ft	0 – 1.0

* Many fire-killed low shrubs and trees will still be standing and contain branches; they will continue to provide structure without live needles/leaves.

Table 3. NSO Habitat Effects from the Project

Dubakella Project	N/R	F	Dispersal	Non	Total
Total Acres of habitat type affected by Activities	204	118	148	2,520	2,990
Habitat Added *(*unsuitable plantations converted to dispersal*)*	0	0	45	0	45
Habitat Benefitted or Maintained (plantation treatments)	0	0	0	2,335	2,335
Habitat Benefitted or Maintained (underburning outside plantations)	139	65	148	140	492
Habitat Degraded short term (control line prep overlapping with underburning outside plantations)	53	41	0	0	94
Habitat Degraded short term (underburning outside plantations)	12	12	0	0	24
Habitat Downgraded	0	0	0	0	0
Habitat Removed	0	0	0	0	0

Table 4. NSO Habitat Effects in LSR Land Allocation[2] (*list separate LSR ID from LSRA*[3] *if effects in more than one*)

NSO Habitat Effects in RC 331 LSR	**N/R**	**F**	**Dispersal**
Habitat Added (unsuitable plantations changed to dispersal)	0	0	24
Habitat Benefitted or Maintained (plantation treatments)	0	0	0
Habitat Benefitted or Maintained (underburning outside plantations)	139	65	148
Habitat Degraded short term (control line prep overlapping with underburning outside plantations)	53	41	0
Habitat Degraded short term (underburning outside plantations)	12	12	0
Habitat Downgraded	0	0	0
Habitat Removed	0	0	0

NSO Critical Habitat Information

1) Will the proposed action impact any designated NSO critical habitat? **Yes** ☒ **No** ☐

2) If **No**, do not complete Table 4. If **Yes**, describe the anticipated impacts to the function of the critical habitat *(e.g., dropping and leaving hazard trees, removing trees, short-term, long-term, minor, adverse? Summarize the effects to NSO Critical Habitat from treatments, including a summary of effects to PBF 1 and if you have determined a timeframe for PBF 1 to transition into PBF 4, 3 or 2. Add additional tables, as necessary. This information should be complete when using this document as a PIF-BA.*

[2] This information is required for NSO Baseline Habitat Effects tracking
[3] The Forest's Late-Successional Reserve Assessment documents

Within CH, 42 acres of plantations would be converted from Unsuitable (PBF 1) to Dispersal (PBF 4) habitat immediately post-implementation. These plantations contain conifer trees (Douglas fir dominant) with an average QMD greater than 11 inches and at least 40% canopy closure, however they are dense and abundant lateral branches currently obstruct/prevent NSO flight. Thinning these particular plantations would immediately benefit NSO. All other plantations will remain Unsuitable for the foreseeable future. However, thinning the remaining plantations is expected to expedite the development of the plantations into dispersal or suitable habitat in the long-term.

The area proposed for underburning outside of plantations is all within CH. It contains PBFs 1, 2, 3, and 4. No nesting/roosting (PBF 2), foraging (PBF 3) or dispersal (PBF 4) habitat will be removed or downgraded. Underburning is expected to have a minor short-term degrade to 12 acres of nesting/roosting (PBF 2) and 12 acres of Foraging (PBF 3) habitat in some thick areas (24 acres total) that may experience increased torching and mortality, but a long-term benefit overall. Control line preparation within the burn blocks is also expected to be a short-term degrade to NRF habitat, when combined with the underburning (94 acres). Control line prep includes felling and leaving hazard trees, cutting brush and pruning trees to a height up to 8 feet, masticating, handwork, lop/scatter, and pile and burning. Prep would occur within (up to) 50 feet from hand lines and within (up to) 100 feet from dozer lines and roads used as control lines. Prep would only occur on the fire-side of the lines. Individual hazard trees along fire control lines will be felled for worker safety or for containment of prescribed fire; however, this will be limited and they will be left on site as logs.

The project is expected to have minimal impacts to critical habitat and the 332,042-acre ICC1 CH subunit will continue to function, as described under the Final Rule, for demographic support, but also for connectivity between subunits and critical habitat unit (USDI-FWS 2012 p. 71935). Resource protection measures and project design features have been developed to minimize impacts to nesting/roosting (PBF 2) and foraging (PBF 3) habitat (see page 20-22). The goal of prescribed fire in NSO habitat is to maintain suitable habitat functionality by maintaining a sustainable late-successional forest structure and increasing resilience to future disturbance, such as stand-replacing wildfire. Firing techniques will be utilized that maintain habitat functionality and elements immediately post-burn (such as a multi-layered canopy of small to large size class trees, canopy closure, decadence, large snags and large down logs). Crown closure of stands will not be reduced below 60-70% in nesting/roosting habitat or below 40% in foraging habitat. Burning will be done to create low to moderate fire behavior (flame lengths two to six feet but generally less than four feet) to meet the desired habitat restoration objectives, however flare ups and higher flame lengths and fire intensity may occur where there are higher fuel concentrations of small ladder fuels or down wood. A burn monitoring plan will be created and adapted as needed to insure habitat functionality is maintained.

Some individual habitat elements such as small trees, snags or down logs may be consumed by fire. Some woody debris and shrub cover will be consumed by fire and will be unavailable for NSO prey species. This limited loss of individual habitat elements will be for the short-term (1-3 years), as fire effects are dynamic: some snags and logs will be consumed yet some live trees will be killed, contributing new snags and logs to the system. Woody shrubs will be burned, but will re-sprout or re-seed and shrub regrowth following fire is typically rapid. Prescribed fire will be managed to have minimal impacts to overstory trees. It is anticipated that where concentrations of surface and ladder fuels occur there may be isolated torching of larger trees. This is expected to be widely dispersed and infrequent. Overall, broadcast burning is expected to maintain current habitat and have long-term benefits (increased resiliency to future wildfires, insects and disease). The small openings created by pockets of higher severity fire are expected to contribute to habitat heterogeneity and NSO foraging ability would likely improve through enhanced flight space and access to prey.

Table 5. Summary of effects to Critical Habitat in the action area

Dubakella Project	PBF 1	PBF 2	PBF 3	PBF 4	Total
Acres of critical habitat affected by the proposed action *(add additional rows for Unit and Subunit affected if more than one)*	1,469	204	118	148	1,939

Table 6. Critical Habitat Effects in LSR Land Allocation[4] (*list separate LSR ID from LSRA if effects in more than one, and list separate CH Units and Subunits if effects in more than one*)

Critical Habitat Effects in RC 331 LSR	PBF 1	PBF 2 (N/R)	PBF 3 (F)	PBF 4 (Dispersal)
Habitat Added (unsuitable plantations changed to dispersal)	0	0	0	24
Habitat Benefitted or Maintained (plantation treatments)	1,039	0	0	0
Habitat Benefitted or Maintained (underburning outside plantations)	140	139	65	148
Habitat Degraded short term (control line prep overlapping with underburning outside plantations)	0	53	41	0
Habitat Degraded short term (underburning outside plantations)	0	12	12	0
Habitat Downgraded	0	0	0	0
Habitat Removed	0	0	0	0

NSO Action Area Post-Treatment Conditions

Table 7. Post-treatment habitat conditions in the action area

*Complete this information **as feasible for the Expected Post-Treatment Condition**, as not all information may be available at time of PIF submittal and presentation. This information should be complete when submitting as a PIF-BA.*				
Habitat in Post-Treatment action area *(1.3 mile buffer)*	**N/R**	**Foraging***	**Dispersal**	**Non-Habitat**
Total acres habitat	6,807	5,476	11,174	27,776
Critical Habitat Post-Treatment *(add additional Rows below if more than one subunit affected)*	***PBF 2***	***PBF 3***	***PBF 4***	***PBF 1***
CH subunit acres	5,370	3,316	5,348	10,568

* 1.3 mile Action Area also contains 456 acres of Post-Fire Foraging 1 and 36 acres of Post-Fire Foraging 2

[4] This information is required for NSO Baseline tracking for critical habitat

NSO Activity Center Information

Complete Tables below for NSO Activity Centers, as feasible, for PIF presentation.

*Include **pre-and post-project** habitat conditions for owlsheds and/or cores affected by treatments. This information should be complete when submitting as a PIF-BA. Cores are represented by the 0.5 mile or ~500 acre area surrounding the activity center (AC) point; the last known nest site or roost site, or best of nighttime detections. Add rows for each AC.*

Table 8. Pre- and Post-Project Habitat Conditions for Owlsheds* Affected by the Project

AC ID	Pre-Project Owlshed Habitat Acres			Post-Project Owlshed Habitat Acres			Last year AC occupied and status (single, non-repro pair, nesting, failed nest)	BDOW detections & years	Proposed modification of un-surveyed suitable habitat? YES / NO
	N/R	F	D	N/R	F	D			
TRI0435 South Fork Goods Creek Owlshed	234	409	260	234	409	266	2018 Pair- nesting unknown (likely non-nesting)	None	NO

*"Owlshed," as the term is used here, is an area utilized by NSOs. Its placement is based on habitat, topography and survey data of NSO detections from prior years. It will be used in lieu of traditional cores and home ranges in the South Fork Goods Creek drainage. See Page 18 for further explanation.

Table 9. Acres of treatment within TRI0435 South Fork Goods Creek Owlshed.

AC ID	Project Activities within Owlshed Habitat				Habitat Effects
	N/R	F	D	U	
TRI0435	0	0	6	0	Habitat Added (unsuitable plantations changed to dispersal)
	0	0	0	440	Habitat Benefitted or Maintained (plantation treatments including thinning, fuels treatments etc.)
	140	63	124	116	Habitat Benefitted or Maintained (underburning outside plantations)
	51	35	0	0	Habitat Degraded short term (control line prep overlapping with underburning outside plantations)
	12	12	0	0	Habitat Degraded short term (underburning outside plantations)
Total	203	110	130	556	

Table 10. Pre- and Post-Project Habitat Conditions for Cores Affected by the Project

AC ID	Pre-Project Core Habitat Acres			Post-Project Core Habitat Acres			Last year AC occupied and status (single, non-repro pair, nesting, failed nest)	BDOW detections & years	Proposed modification of un-surveyed suitable habitat? YES / NO
	N/R	F	D	N/R	F	D			
TRI0415 Goods Creek Trib	139	42	211	139	42	211	2011 Pair (nesting unknown)	2018 Pair	NO

Table 11. Acres of treatment within TRI0415 Goods Creek Trib Core

AC ID	Project Activities within Core Habitat				Habitat Effects
	N/R	F	D	U	
TRI0415	0	0	0	0	Habitat Added (unsuitable plantations changed to dispersal)
	0	0	0	15	Habitat Benefitted or Maintained (plantation treatments including thinning, fuels treatments etc.)
	5	3	39	1	Habitat Benefitted or Maintained (underburning outside plantations)
	3	4	0	0	Habitat Degraded short term (control line prep overlapping with underburning outside plantations)
	0	1	0	0	Habitat Degraded short term (underburning outside plantations)
Total	8	8	39	16	

*For **Table 12**, include **pre- and post-treatment** habitat conditions for home ranges affected by treatments. This information should be complete when submitting as a PIF-BA. Home ranges are represented by the 1.3 mile or ~3,398 acre area surrounding the AC point. The home range acreages below should include the core. Add rows for each AC.*

Table 12. Pre- and Post-Project Habitat Conditions for Home Ranges Affected by the Project (includes cores)

AC ID	Pre-Project Home Range Habitat Acres			Post-Project Home Range Habitat Acres			Describe other relatively applicable information for post-treatment conditions
	N/R	F	D	N/R	F	D	
TRI0415 Goods Creek Trib	624	529	618	624	529	642	24 acres of unsuitable habitat in plantations will immediately convert to dispersal habitat. See Table 13 below for breakdown of treatment types and habitat effects.

Table 13. Acres of treatment within TRI0415 Goods Creek Trib Home Range

AC ID	Project Activities within Home Range Habitat				Habitat Effects
	N/R	F	D	U	
TRI0415	0	0	24	0	Habitat Added (unsuitable plantations changed to dispersal)
	0	0	0	353	Habitat Benefitted or Maintained (plantation treatments including thinning, fuels treatments etc.)
	139	58	127	98	Habitat Benefitted or Maintained (underburning outside plantations)
	47	30	0	0	Habitat Degraded short term (control line prep overlapping with underburning outside plantations)
	12	12	0	0	Habitat Degraded short term (underburning outside plantations)
Total	198	100	151	451	

Describe any additional effects information for the cores and home ranges. If more complex or overlapping treatments are involved, include additional descriptions and tables that demonstrate this (e.g., acres of thinning overlapped by acres of fuels treatments or prescribed fire, in cores/home ranges, etc.). Please add tables or information as well if the home ranges or cores also include private lands. Provide maps and shapefiles of habitat conditions and shapefiles for the action area, as available.

"Owlshed," as the term is defined and used here, is an area utilized by NSOs. It will be used in lieu of traditional cores and home ranges for the South Fork Goods Creek (TRI0435) Activity Center. The SF Goods Creek (TRI0435) Owlshed is 1619 acres total and its size and placement is based on habitat, topography and survey data of NSO detections from prior years. It encompasses the SF Goods Creek drainage and its western, eastern and southern boundaries are major ridges that separate it from neighboring creek drainages. Its northern boundary encompasses a small portion of the Goods Creek drainage (near where SF Goods Creek flows into Goods Creek). All past detections of the TRI0435 owls have occurred within the owlshed boundaries and due to topography and location/occurrence of suitable habitat, these owls are expected to utilize this area (or portions of it). This is supported by the presence and observation of colored leg bands on this pair of owls. The majority of the nesting/roosting habitat is along the SF Goods Creek corridor, near the creek/drainage bottom, with some NR habitat extending up side-drainages to the east. Foraging habitat is also present within the main creek corridor but is also distributed up side drainages to the west and east. To the west of the Owlshed boundary, the habitat is predominantly unsuitable. To the east of the Owlshed boundary, there is limited suitable habitat and a different Activity Center (TRI0415) which has been occupied in the past by a separate pair of owls (but not since 2011). All treatments within the TRI0415 core and home range that are outside of plantations are within the TRI0435 Owlshed. If NSO were to reoccupy TRI0415 in the future, it is unlikely that they would utilize the area within the TRI0435 Owlshed due to the presence of a different owl pair and the territorial nature of this species.

Maps of the TRI0435 Owlshed, NSO habitat, proposed treatments and control lines are included in Appendix E & F.

A map of the TRI0415 core and home range NSO habitat and proposed treatments is included in Appendix E.

There are several other cores and home ranges in the Action Area, however they only contain plantation units (no treatments outside plantations). Habitat will remain unsuitable in those plantations and thus, those ACs are not included in the tables above or this analysis as habitat will be maintained/benefitted.

PDFs have been developed in collaboration with FWS that maintain suitable habitat functionality and limit the proportion of cores, home ranges and the SF Goods Creek Owlshed burned in any one year. Within the SF Goods Creek Owlshed, no more than 50-60 percent of the suitable habitat within the northern portion of the Owlshed will be burned in any one year (see page 20-22 for PDFs).

Private land:
-Within the SF Goods Creek Owlshed, there are 17 acres of foraging, 18 acres dispersal and 22 acres unsuitable habitat on private lands.
-Within the Goods Creek Trib core, there are 63 acres dispersal and 59 acres unsuitable on private lands.
-Within the Goods Creek Trib home range, there are 17 acres foraging, 161 acres dispersal and 809 acres unsuitable on private lands.

ESA Cumulative Effects

1) Is there private property in the action area, core(s) and/or home range(s)? If so, what type and what are the known ongoing or reasonably certain actions? Include any applicable information on Timber Harvest Plans (THPs) and Emergency Exemptions/Notices. *Discuss with L1 if you have questions on where to access the THP and Emergency Exemptions/Notice Information from Calfire. While a cumulative effects analysis is not required for informal consultations, it may be good to address it for NEPA purposes.*

Not needed for may affect, not likely to adversely affect determination.

Additional Information for NSO and Anticipated Project Effects

Include information here on project design features or resource protection measures, standard operating procedures, or other pertinent information relevant to the discussion of the PIF at Level 1 and effects to NSO. Attach or bring digital map data to the meeting.

Wildlife Resource Protection Measures

1. Limited operating periods (LOPs) will be implemented to avoid potential impacts to northern spotted owls:

> For northern spotted owls (*Strix occidentalis caurina*), starting on February 1 through July 9, all activities that generate loud and continuous noise and/or smoke will be prohibited within 0.25 mile of suitable nesting/roosting and foraging habitat that is occupied or unsurveyed. The LOP will be February 1 through September 15 for all activities directly manipulating nesting/roosting or foraging habitat that is occupied or unsurveyed. The only project units within nesting/roosting and foraging habitat that will need this longer LOP are the prescribed fire units outside of plantations. See the project units list located in Appendix C for which units will have LOPs. Surveys to protocol can be used to generate new breeding activity results. If protocol-level surveys indicate no nesting activity within 0.25 miles of proposed activities at the time of implementation or by mutual agreement with the FWS, these LOPs may be lifted.

2. For the gray wolf (*Canis lupus*), if new information from the State or other verified sources shows there are reproducing wolves within five miles of project activities, the Forest will contact USFWS for technical assistance and discuss the need for reinitiation of consultation.

3. Retain any existing legacy trees and existing snags greater than 15 inches DBH unless the legacy tree/snag poses a safety hazard for that specific site or the number of snags present on the site exceeds fuel loading recommendations, in which case the largest snags would be retained while meeting the recommended retention levels per the LRMP for the specific land allocation. Any legacy trees or snags greater than 15 inches felled for safety reasons would be left on site as logs.

4. Coarse wood (logs greater than 20 inches diameter and 10 feet long) that is already on the ground will be retained where it will not cause a safety concern for implementation, and protected from disturbance to the greatest extent possible during mechanical treatment activities and prescribed burning, as feasible. Within nesting/roosting and foraging habitat, large logs will be maintained as feasible, with an average of 6-8 logs per acre (at least 20 inches in diameter and 10 feet long) retained with an average of 10-20 tons/acre of fuel remaining, for protection of habitat and soil fertility.

5. Snags and logs with deformities such as cat faces, broken or forked tops, hollows or cavities will be prioritized for retention.

6. Protect and retain dominant and co-dominant class hardwoods (all treatments) along with healthy intermediate class hardwoods (Riparian Reserves only), as possible where they do not interfere with or cause a hazard to implementation.

7. No new landings or temporary roads are proposed in NSO nesting/roosting or foraging habitat. If additional new landings or temporary roads are needed, they will be created outside of nesting/roosting habitat, as feasible or will ensure trees greater than 24" will be retained.

8. Any tail hold trees felled outside of the area to be treated will be left onsite where they lay. In NRF habitats, all tail holds will be approved by a wildlife biologist prior to cutting and cutting of tail hold trees over 24" DBH in NRF habitat will be avoided when feasible (cable corridors will only be within plantations).

Project Design Features Pertinent to NSO

The following recommendations and design features were developed collaboratively with USFWS and were written specifically for this Project. The recommended Project Design Features were developed to minimize underburning effects to northern spotted owls and their suitable habitat to an insignificant and discountable level.

General Information and Recommendations for Underburning Outside of Plantations

- Year-of-Activity Surveys: The Level 1 consultation team will coordinate annually throughout the extent of project implementation to cooperatively determine the survey effort, or PDFs that limit operations, that are needed in order to support the determinations in the Biological Assessment.
- Suitable habitat, as the term is defined and used here, consists of nesting, roosting and foraging habitat.
- "Owlshed," as the term is defined and used here, is an area utilized by NSOs. Its placement is based on habitat, topography and survey data of NSO detections from prior years. It will be used in lieu of traditional cores and home ranges in the South Fork Goods Creek drainage.
- Prescribed fire will be variable within and between stands, will be distributed over a number of years, and will incorporate project design features that seasonally restrict operations during the NSO nesting season, and that limit the proportion of core areas and home ranges (or "owlsheds," if designated) burned in any one year. Burning will be done to create low to moderate fire behavior (flame lengths two to six feet but generally less than four feet) to meet the desired habitat restoration objectives, however flare ups and higher flame lengths and fire intensity may occur where there are higher fuel concentrations of small ladder fuels or down wood.
- Coarse wood (logs greater than 20 inches diameter and 10 feet long) that is already on the ground will be retained where feasible. Within nesting/roosting and foraging habitat, large logs will be maintained as feasible, with an average of 6-8 logs per acre (at least 20 inches in diameter and 10 feet long) retained with an average of 10-20 tons/acre of fuel remaining, for protection of habitat and soil fertility.
- Limited operating periods (LOPs) will be used to avoid direct effects and disturbance to the NSO. From February 1 through July 9, all activities that generate loud and continuous noise and/or smoke will be prohibited within 0.25 miles of nesting/roosting and foraging habitat that is occupied or unsurveyed. In addition, the LOP will be February 1 through September 15 for all activities directly manipulating nesting/roosting or foraging habitat that is occupied or unsurveyed. If protocol-level surveys indicate no nesting activity within 0.25 miles of proposed activities at the time of implementation or by mutual agreement with the FWS, these LOPs may be lifted.

Project Design Features for Underburning and NSOs

1. Surveys (consisting of stand searches, spot checks, or other agreed-to survey methods as described in the current NSO survey protocol) may be used to determine if NSOs are occupying a stand or nesting each season that underburning may be completed. The activity center (core center) location will be delineated based on these annual results. If surveys cannot be completed, occupancy and nesting will be assumed and the activity center will be placed at the last known activity center or nest site location.
2. Regardless of the occurrence (or lack) of surveys the year of implementation or the results of surveys, the following will apply to all nesting/roosting habitat within a core (when utilizing traditional cores and home ranges) or an owlshed:
    a. Utilize firing techniques that maintain suitable habitat functionality immediately post-burn.
    b. If necessary to maintain the above-referenced habitat function/elements, manual treatments such as cutting brush and moving large logs out from around large snags and previous nest trees, pruning, hand thinning or hand piling of small diameter fuels, or light thinning of regeneration pockets may be completed prior to underburning. The target treatment area would be around known/previous nest trees and other large trees/snags in the area that could be valuable nest trees (not all NR habitat). However, these manual treatments when combined with underburning will still maintain habitat functionality.
    c. A burn monitoring plan will be created, and adapted as needed, to insure habitat functionality is maintained, in collaboration with the Yreka FWS.
    d. During underburning, FWS biologists will be invited to be onsite with Forest Service biologists or other staff to monitor burn implementation, and to cooperatively develop recommendations for burn plan modifications, if needed, to maintain habitat functionality.

3. No more than 50-60 percent of the suitable habitat within a 0.5-mile core area or a 1.3-mile home range area will be burned in any one year, with the following exception:
4. Within the South Fork Goods Creek "owlshed," no more than 50-60 percent of the suitable habitat within the northern portion of the "owlshed" will be burned in any one year. This PDF will not apply to the southern portion of the "owlshed" (it can all be burned in one year).
5. Crown closure of stands will not be reduced below 60-70% in nesting/roosting habitat or below 40% in foraging habitat.
6. When burning in spring, manage smoke to reduce the effects to adjacent stands of suitable habitat so it dissipates or lifts within 24 hours. If spring burning is conducted outside of the 0.25-mile disturbance buffer but within 0.5 mile uphill of a known NSO activity center or nest, or within 0.25 to 0.5 mile of unsurveyed suitable habitat, smoke will be managed as described above and ignition should be discontinued if heavy, concentrated smoke begins to inundate suitable habitat late in the afternoon.

See Appendix C for complete list of project RPMs.

Final (PIF-BA) Determination and Rationale for NSO and Critical Habitat:

The proposed project may affect, but is not likely to adversely affect the northern spotted owl and NSO Critical Habitat, because:

- Implementation of Limited Operating Periods will prevent disturbance or harm during the nesting season.
- No suitable or critical habitat will be downgraded or removed.
- Thinning of younger plantations will expedite their growth towards suitable NSO habitat in the future.
- Thinning of older plantations will make them available for dispersal post-project.
- Prescribed burning within suitable habitat/critical habitat will be designed to maintain habitat quality and functionality while reducing the risk of habitat loss due to future high severity wildfire, insects or disease.
- Potential impacts to suitable habitat would be insignificant due the small acreage of habitat that will be degraded, the limited impacts to habitat quality, and the long-term benefits provided by treatments.
- The project is expected to have minimal impacts to critical habitat and the ICC-1 habitat subunit will continue to function.

References

California Department of Fish and Wildlife (CDFW). 2018. Gray wolf. Accessed at: https://www.wildlife.ca.gov/Conservation/Mammals/Gray-Wolf.

Hughes, Janice M. 2015. Yellow-Billed Cuckoo (*Coccyzus americanus*). In The Birds of North America Online, No. 418 (A. Poole, Ed.). Cornell Lab of Ornithology, Ithaca, New York. Accessed at: http://bna.birds.cornell.edu/bna/species/418/articles/distribution.

Jordan, Chrstine. 2018. Personal email communication with Yreka USDI FWS wildlife biologist, November 6, 2018.

Kay & Benson. 2006. Landscape Assessment (LA) Sampling and Analysis Methods. USDA Forest Service Gen. Tech. Rep. RMRS-GTR-164-CD.

Laudon, Kent. 2018. Personal phone communication with CDFW wolf biologist, November 7, 2018.

Prichard et al. 2013. Fuel Characteristic Classification System version 3.0: technical documentation. Gen. Tech. Rep. PNW-GTR-887. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 79 p.

USDA Forest Service 1999. Shasta Trinity National Forest. Forest Wide LSR Assessment August 26, 1999.

USDI Fish and Wildlife Service (FWS). 1984. Valley elderberry longhorn beetle recovery plan. USDI Fish and Wildlife Service. U.S. Department of the Interior. Portland, OR.

USDI FWS. 2002. Recovery plan for the California red-legged frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Portland, Oregon. Viii + 173 pp.

USDI FWS. 2005. Final Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Accessed at: https://ecos.fws.gov/docs/recovery_plan/060614.pdf

USDI Fish and Wildlife Service. 2011. Revised Recovery Plan for the Northern Spotted Owl (*Strix occidentalis caurina*). U.S. Fish and Wildlife Service. June 28, 2011. Portland, Oregon.

Attachments

Appendix A. Species List

Appendix B. Map of Project Units and NSO Habitat in Action Area

Appendix C. Decision Memo (unsigned) containing Proposed Action

Appendix D. Plantation Data Spreadsheet

Appendix E. Map of TRI0435 Owlshed & TRI0415 Activity Center, NSO Habitat and Proposed Treatments

Appendix F. Map of TRI0435 Owlshed, Proposed Treatments including Broadcast Burning Control Lines

Appendix G. Table of Project Units that need NSO LOP